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State of Utah

DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF WATER QUALITY

DOGM
MINERALS PROGRAM
FILE COPY

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September 24, 1993

Mr. Glenn M. Eurick
Environmental Affairs Coordinator
Barrick Mercur Gold Mine
P. O. Box 838
Tooele, Utah 84074

RE: Land Application of Biosolids for Mined Land Reclamation

Dear Mr. Eurick:

Thank you for Barrick's proposal to use biosolids for a reclamation demonstration project, received by this office September 3, 1993. The Division of Water Quality (DWQ) is certainly supportive of the beneficial use of a valuable by-product of wastewater treatment, as well as the improvement in water quality and the environment in general that can result from land reclamation.

This project is approved principally as proposed, subject to the following additional conditions:

1. At least two weeks before land application begins, please submit biosolids analysis, on a dry-weight basis, for the following parameters:
   a. the ten metals in 40 CFR 503.13(b)(1) (Table 1)
   b. nitrogen: ammonia, nitrate + nitrite, and organic
   c. the geometric mean of the density of fecal coliform bacteria in seven grab samples of sludge, if not from a load of sludge that will actually be land-applied, then from the same source as the sludge that will be land-applied, so that it is representative of the sludge that will be land-applied.

2. At least two weeks before land application begins, also submit
   a. the proposed rate of application (not to exceed the metals cumulative pollutant loading rates of 40 CFR 503.13(b)(2).)
   b. the basis for determining the rate of application (my staff may be able to give some technical assistance on this)
   c. suggested justification if the proposed rate exceeds the agronomic rate
   d. the nitrogen demand of the crop that will be planted (overall, not necessarily for each species)

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e. an explanation of how a vector attraction reduction method from 40 CFR 503.33(b)(1)-(10) will be met (for instance, if the volatile solids reduction is sufficient, then incorporation will not be required)

f. soil analysis for nitrate + nitrite. This analysis shall be performed on composite samples taken at one foot intervals to five feet deep. Each composite sample shall be composed of subsamples all taken at the same depth from at least six different sites within or adjacent to the study area. This analysis shall be repeated at least every five years, following the baseline (pre-application) analysis, and the results submitted to DWQ as soon as they are available.

3. The land application shall comply with all applicable portions of 503, such as site restrictions and management requirements.

If these conditions are met, this project is expected to have *de minimus* impact on ground water. Therefore, this project is permitted-by-rule and you are not required to apply for a ground water permit. However, facilities permitted-by-rule are subject to the requirement that any discharge shall not cause any ground water standards or class TDS limits to be exceeded.

The steep slopes in the demonstration area do give some cause for concern about erosion and run-off. The implementation of the storm water pollution prevention plan required by your UPDES Permit No. UT0023884, Part I.E, is expected to be sufficient to prevent any water quality problems. Although your UPDES permit does not impose any numerical limits on the quality of run-off from the demonstration area, the monitoring (which includes TSS, nitrate and some metals) will help to detect any change in water quality, or to demonstrate the lack of an effect.

Since any erosion of sludge or leachate of nitrate into surface waters that could possibly occur is as likely to result from snow-melt and the spring run-off as from rain-storm events later on, this approval letter requires you to sample and analyze run-off which occurs during the time that the demonstration area is being exposed by the first spring snow-melt. This assumes that there is visible surface run-off from the area, and that the sampling is done once each spring for the life of your UPDES permit. This monitoring must be done in compliance with UPDES Permit Part I.E.8, and is allowed to take the place of one of the two times monitoring required per year for this area (i.e. snow-melt run-off is considered equivalent to a one-inch rainfall storm event mentioned in the UPDES permit.)

We understand that the goal of reclamation is to achieve a permanent, diverse and self-sustaining vegetative cover, according to the reclamation rules administered by the Division of Oil, Gas and Mining (DOGM). Therefore, the success of land-application in this demonstration project will be assessed based on the achievement of the applicable reclamation performance standards as determined by DOGM, as well as compliance with water quality standards of the State.

EPA is currently the permitting authority for 503, but the State also has case-by-case approval authority for the land application of sludge (*UAC R317-3-9.9*). The sludge generator bears most of the responsibility for compliance with 503, including applying for a 503 permit, record keeping and reporting to EPA.

Of course, we know that dealing with both State and Federal agencies and regulations regarding any issue can be confusing, duplicative and even contradictory, so DWQ and the EPA are working closely together in order to streamline and increase efficiency for all of us. Your sludge contact here at DWQ, Lisa Rogers, is coordinating with EPA for you, so that you needn't contact EPA directly (although you should feel free to call EPA for technical or regulatory advice.) We have sent a copy of your proposal dated September 2, 1993 to Bob Brobst. We have received his comments, which have been incorporated into this approval.

We expect that your proposed application rate will exceed the agronomic rate, and we expect to be able to approve a rate higher than agronomic because of the site specific circumstances. It is required by 503 that EPA (as the permitting authority) must approve of an application rate higher than agronomic. As a result of our continuous, on-going consultation with EPA, we have arranged for EPA approval to be expedited, as soon as we receive your proposed application rate. We need to receive the proposal from you at least two weeks before application begins, and we (both the State and EPA) expect to provide approval to you within that two weeks. (Please address your proposal to the attention of Lisa Rogers, to assist us in our internal routing of the mail.)

Now that you have general approval in hand, we look forward to working with you informally on the design of the project. For instance, we would like to recommend that you use various sludge application rates. This should enable you to demonstrate the minimum amount of sludge that is required to achieve your goal of DOGM-approved reclamation, so that you don't apply more than necessary in future. We also recommend that you use duplicate areas for each type of treatment within each slope category, within the project area. This should bolster the validity of your results.

We expect this project to provide information useful to other mine reclaimers, sludge generators and regulators, as well as to actually reclaim up to thirty-five acres of land. If you have any questions or we may be of further assistance, please call Lisa Rogers of my staff, at 538-6146.

Sincerely,

Utah Water Quality Board

Don A. Ostler, P.E.
Executive Secretary

DAO:lr:st

cc: James Carter, Director, Utah Division of Oil, Gas & Mining
Bob Brobst, EPA Region VIII
Melvin Muir, Salt Lake City/County Health Dept.
Kiran Bhayani, Manager, Design Evaluation Section, UDWQ
Larry Mize, Manager, Ground Water Protection section, UDWQ

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